

Does Presentation Order Impact Choice After Delay?

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WORD COUNT: 3804

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Abstract

Options are often presented incidentally in a sequence, but does serial position impact choice after delay, and if so, how? We address this question in a consequential real-world choice domain. Using 25 years of citation data, and a unique identification strategy, we examine the relationship between article order (i.e., position in a journal issue) and citation count. Results indicate that mere serial position affects the prominence that research achieves: Earlier-listed articles receive more citations. Further, our identification strategy allows us to cast doubt on alternative explanations (i.e., editorial placement) and instead indicates that the effect is driven by psychological processes of attention and memory. These findings suggest that subtle presentation factors can bias an important scientific metric and deepen understanding of how presentation order impacts choice.

KEYWORDS: Order Effects, Choice

Citations are seen as an objective measure of scholarship (Hamermesh, Johnson, & Weisbrod, 1982; Smart & Waldfogel, 1996) and are used to determine everything from hiring and tenure to journal and department prestige to society membership and grant funding (Garfield, 1999). But could the order in which articles happen to appear in a journal issue impact the number of citations they receive? Could mere article order influence impact?

While the answer to this question has obvious implications the use of citations as an objective quality metric, it also provides important insight into how serial position impacts choice. Order effects have been examined across a variety of literatures, but existing work has focused on situations where processing is motivated and choice (or evaluation) is immediate. People are asked to select their favorite option from a set of possibilities (Mantonakis, Rodero, Lesschaeve, & Hastie, 2009) or to remember information from a long list (Glanzer & Cunitz, 1966). But what about the preponderance of real-life situations where consumers have no motivated reason to study the options, or just happen to browse them out of interest? People browse the *New York Times* Bestseller list while reading the rest of the paper or scan restaurant menus on the way to another event. Might mere presentation order influence later choices? And if so, which sequence positions are optimal?

This paper examines how order effects influence choice after delay, even in a situation where exposure to the information may be more casual than motivated. Further, we examine these effects in a consequential real-world setting. Using 25 years of citation data, and a unique identification strategy, we examine whether the order in which articles appear in a journal issue influence the number of citations it receives. The results deepen

understanding of order effects on choice, and along the way, shed light on the objectivity of citations as a measure of scholarship.

Effects of Serial Position on Choice

Some research suggests there are primacy effects on choice, or benefits to being first or early in a sequence (Becker, 1954; Berg, Filipello, Hinreiner, & Sawyer, 1955; Carney & Banaji, 2008; Miller & Krosnick, 1998). When consumers are asked to taste and pick their favorite beer from a set of four, for example, the first option tends to be chosen more often (Coney, 1977). Similarly, taste testers tended to prefer the first food option they tried (Dean, 1980).

Other work, however, has found recency effects, or benefits from being later or last in a sequence (de Bruine 2005, Houston, Sherman, & Baker, 1989; Li and Epley, 2009; Nisbett & Wilson, 1977). When choosing between pairs of stockings, consumers tended to prefer the option that came last (Nisbett & Wilson, 1977). Similarly when choosing items from a set of good paintings, jelly beans, or songs, participants tended to choose the last item in the set (Li & Epley, 2009).

Overall then, while some studies have examined how location in a sequence influences choice, it remains unclear which position is most advantageous (see Li & Epley, 2009; Mantonakis et al., 2009 for potential moderators).

Further, there has been little attention to how serial position might affect choice after delay. Existing research has focused on situations where choice directly follows exposure to the options. People tasted food, examined stockings, or listened to songs and

then immediately made their choice. In many real world situations, however, there is a substantial delay between exposure and choice. People may read movie listings or scan travel blogs, only to make their actual decisions weeks or months later. Might the order in which options are presented impact choice after delay, and if so, how?

There has also been little attention to whether serial position effects occur in situations where people browse through lists without an explicit choice goal in mind (e.g., pick the best). Existing research has focused on cases where judges and participants knew they would be exposed to a set of options and would have to make a choice at the end of the set. This likely led them to carefully process the different options and examine each in the sequence (Mantonakis et al., 2009). But while consumers sometimes actively scan information in the service of a choice they are about to make, other times they may just happen across that information without any explicit choice goal or along the way to doing something else. People may come across a bestseller list without any explicit plan of buying a book, for example, yet presentation order might still impact what book they end up buying in the future. What happens when people just happen to be exposed to sequential information, and may or may not need to remember it or ever make a decision about it ever again?

Finally, what about situations where choice is not required or multiple options may be chosen? Prior work has focused on cases where participants are asked to choose only one option from the sequence. They are asked to pick their favorite beer, song, or stocking from the available set, but in many real world situations, choice is optional. Students may scan a list of courses without having to pick one or browse the electronics

aisle without any specific plan to buy. In other cases, people may even end up selecting multiple options. Might serial position effect choice in such situations, and if so, how?

The Current Research

This paper examines whether the order that items appear in a sequence impacts choice after delay, even in situations where exposure is more incidental than motivated and choice is not required. In particular, we suggest that items that appear earlier (e.g., first) items should be more likely to be chosen (i.e., primacy effects). Especially in situations where exposure to the items is casual rather than motivated, earlier items are more likely to be seen. Most people start at the top of lists, for example, meaning that earlier items should be more salient, easier to find, and receive more attention (Salganik, 2007). Position may also impact what is remembered. The serial position curve is one of the most studied results in memory (see, for example, Murdock, 1960), and due to less proactive interference, and other factors, items presented earlier in lists are more likely to be remembered, particularly after delay (Glanzer & Cunitz, 1966).¹ Taken together, this suggests that earlier items should be chosen more often.

A Field Test

We examined whether the order in which articles appear in a journal impact the number of citations they receive (see Haslam, Ban, Kaufmann, Loughnan, Peters,

¹ People may also implicitly prefer things presented first (Carney & Banaji, 2008), but given these effects are weaker when people deliberate, this mechanism seems like a less likely to drive what articles get cited.

Whelan, & Wilson, 2008; Quiñones-Vidal, López-García, Peñaranda-Ortega, & Tortosa-Gil, 2004 for other research using citations in psychology). Article order is a particularly good domain to examine because (1) items are displayed in a sequence but (2) people are not required to process all options, (3) choice is optional, and (4) selection tends to occur after delay. Articles are published in a particular order in a journal issue, and most journals have a table of contents listing the articles in the order they appear (e.g., on the cover as well as online). Readers can expose themselves to whichever articles they want and they are not required to cite any articles upon initial exposure. Further, while researchers certainly seek out particular articles to cite at a given point in time, most situations where article order could have an effect occur after a delay (i.e., people see an article when it is released and then cite it months or years later). We predict that articles that appear earlier (e.g., first) would receive more citations.

It is worth noting that given citations are seen as an unbiased, objective measure of quality, they are a particularly strong test of order effects. Further, given that papers can only be cited if they relate to a particular topic, one could argue they should not be influenced by simple context type effects. Consequently, if presentation order influences citation count it would underscore the importance of presentation order on choice.

Method

Our approach uses a unique identification strategy to disentangle order effects from alternative explanations. One could argue that journal editors assess quality *a priori*, and place better articles earlier (Smart & Wladfogel, 1996; Stremersch, Verniers, &

Verhoef, 2007; van Dalen & Henkens, 2001). Alternatively, even if this is not actually the case, if readers think this is true, they might believe earlier articles are better quality and cite them more. Consequently, any observed relationship between article order and citations could be due to editorial placement or perception rather than order effects.

To disentangle these possibilities, we collected data from a journal (*Journal of Personality and Social Psychology*-JPSP) that is divided into three independently edited sections, alphabetically ordered by research area (i.e., Attitudes and Social Cognition, Interpersonal Relations and Group Processes, and Personality Processes and Individual Differences, see Figure 1). Accepted articles are published separately by section. Consequently, while individual editors determine article order in their section, articles that lead off the first section should be more salient because they are the lead article in the overall journal issue.

These independently edited sections allow us to scrutinize the link between order and citations. If earlier articles in a section get more citations solely because editors place better articles earlier, or because people assume earlier articles are better, then the relationship between article position and citations should be similar across sections. In contrast, if the citation boost for first articles in a section is greatest for the first section, it suggests something beyond mere editorial placement, or reader lay theories, is at play.² The first article in the first section leads off the issue and should be most likely to be salient, seen, and remembered, even by readers that tend to read articles from other

² This identification strategy requires a journal with (1) different sections that are (2) independently edited, where (3) section choice is not based on article length and (4) most articles sent to one section could not easily be sent to another. The journal must also have these characteristics for a long enough time period to generate a reasonable dataset. Some journals have different sections based on article length (e.g., *Psychological Science*), but this may introduce confounds. Other journals allow authors to submit to different topical sections, but a single editor then chooses article order for the whole journal rather than articles being published in contiguous topical sections (e.g., *Management Science*).

sections. Thus examining the *interaction* of article order and section sheds light on the drivers behind any observed effects.

We collected citation counts for all regular articles published from 1980 to 2005 (almost 5,000 articles) using Institute for Scientific Information's Web of Science citation index. We also recorded article position, both overall and within section. Importantly, because articles in a certain section may just generally receive more citations, we include section fixed effects. We also control for the number of articles in a particular section in each issue (since it could impact the attention a given article receives), and since older articles have had longer to accumulate citations, we control for time using a year fixed effects. A few articles receive many more cites than the rest, so we excluded outliers that received more than three standard deviations above the mean number of citations. Retaining these outliers, however, and analyzing the log of citations provides similar results.

Results

First, we examined the relationship between article order in the entire journal and citations (see Figure 2 for a graphical representation). There is a negative relationship between article order and position such that earlier articles received more citations (Table 1, model 1: $b = -.99$, $SE = .18$, $p < .001$). While far from conclusive, this provides preliminary evidence of primacy effects.

Second, to provide a stronger test of whether presentation order is actually leading articles to be cited more, we examine how the relationship between article order and

citations varies across the different sections (see Figure 3). As predicted, while articles that appeared earlier in any section generally received more citations (Table 1, model 2, $b = -4.05$, $SE = 1.12$, $p < .001$), more importantly, this relationship was stronger in the lead section compared to either the second ($b = 3.58$, $SE = 1.81$, $p < .05$) or third sections ($b = 2.27$, $SE = 1.18$, $p < .06$).

This pattern indicates that serial position has a primacy effect on choice after delay and casts doubt on alternative explanations for the effect. While one could argue that editors place better articles earlier, or that people assume that earlier articles are better quality, these main effect explanations have trouble explaining the interactive pattern of results, or why the relationship between article order and citations differs across sections. We not only find a citation boost for appearing earlier in a section, we also find that the boost is greatest for articles in the first section, which are the ones that should benefit most from primacy effects. Further, while certain sections (research areas) may simply be more popular (something we control for using section areas), this would shift the intercept, but cannot explain why the slope within the section varies across sections.

Ancillary tests rule out alternative explanations even further. First, we contacted all living section editors from the period studied and asked what, if any, strategies they used when placing accepted articles during their editorial tenure. The most common response was ordering articles by order of acceptance. There was no difference in reported strategies across sections and editors of the first section did not report using article quality to determine position any more than editors of the other sections. Most importantly, we still find an effect of article order on citation count, even among the

subset of editors who claim random placement. The fact that article order is linked to citation count even in cases where editors explicitly noted they did not order articles by quality, casts strong doubt on editorial placement as an alternative explanation.³

Second, we looked at the pattern of effects over time. The shift towards electronic databases and reading articles online means that more readers find articles without ever seeing what order they appeared in the journal. This provides yet another opportunity to tease apart primacy effects from potential alternative explanations. If the relationship between article order and citations is driven by editors placing better articles first, then it shouldn't matter whether people find articles through reading the journal or electronic databases. Earlier articles would be of higher quality and get cited more regardless. If primacy effects are at work, however, they may weaken with reliance on online databases because fewer people happen across the earlier articles as they peruse the journal, and thus the benefits of appearing earlier should be reduced. To examine time dynamics, we interacted position in overall the journal with years since publication to model 1. Consistent with primacy effects, and inconsistent with editorial placement, results indicate a significant negative interaction ($b = -0.14$, $SE = 0.03$, $p < .001$), suggesting that the relationship between article order and citations was stronger previously than it is now.

Robustness Checks.

³ Another alternative explanation is that quality differences between first and other articles are somehow larger in the first section. Though possible, this appears unlikely. The first two sections contained similar numbers of articles, making it doubtful that greater variance caused by more articles drove the effect. Further, for this to drive the results editors would still have to accurately place the highest quality articles first, which editor correspondence shows did not occur most of the time.

To avoid assumptions about the linearity of the relationship between article order and citations, we compared the first article in each section with the rest of the articles in that section, across sections. Results were similar to the main analyses. For example, the first article in the first section received an average of 79.23 cites (SE = 3.90), while the rest of the articles in that section received an average of only 62.29 cites (SE = 2.07). In contrast, while the first article in the 2nd section (M = 54.18, SE = 3.88) and 3rd section (M = 62.19, SE = 3.92) did receive more cites than other articles in their sections (M = 51.15, SE = 2.35 and M = 59.79, SE = 1.48 respectively), the boost was much smaller. More rigorous analysis (Table 1, model 3) shows that the first article in any section generally received more citations than the rest of the articles in that section ($b = 17.79$, SE = 4.27, $p < .001$). More importantly, the citation boost for being first in a section was greater in the lead section compared to either the second ($b = -15.77$, SE = 6.12, $p < .01$) or third sections ($b = -13.56$, SE = 5.89, $p < .02$). This pattern further supports the notion that primacy effects influence choice after delay.

Results are also robust to alternate ways of controlling for time. The main analyses used year fixed effects to avoid imposing any assumptions on the relationship between time and citations, but time can also be captured by the number of years that have passed since publication. Including time in this fashion, however, as well as time-squared to allow for nonlinearity, reveals similar results (Table 1, Models 4-6).

Recency Effects

We also examined the presence of recency effects. One could argue that latter items have less retroactive interference, for example, and thus should be more likely to be

chosen. First we looked at position in the overall journal. We examined how citations varied based on whether an article appeared last in the journal, 2nd to last, 3rd to last, and so on. There was no evidence, however, that appearing later led articles to get more citations. If anything, however, articles that appeared later in the journal actually received *fewer* citations ($b = .82$, $SE = .22$, $p < .001$). The last article in the journal, for example, received fewer citations than the second to last article ($M_{\text{last}} = 38.81$ vs. $M_{\text{2nd to last}} = 49.49$).

We also looked at position in each individual section, examining how citations varied based on whether an article appeared last in any section, 2nd to last, 3rd to last, and so on. Again, however, there was little evidence of recency effects. First, looking across sections found that the last article in a section received slightly fewer citations than the 2nd to last article ($M_{\text{last}} = 53.03$ vs. $M_{\text{2nd to last}} = 56.99$; $\beta = 4.01$, $SE = 2.79$, $t = 1.44$, $p = .15$). Second, looking at each section individually found similar results. The last article in a section did not receive significantly more citations than the second to last article in any of the three sections (1st section: $M_{\text{last}} = 55.08$ vs. $M_{\text{2nd to last}} = 61.09$, $p > .20$; 2nd section: $M_{\text{last}} = 52.66$ vs. $M_{\text{2nd to last}} = 49.57$, $p > .47$; or 3rd section: $M_{\text{last}} = 52.82$ vs. $M_{\text{2nd to last}} = 61.60$, $p > .09$).

General Discussion

Analysis of field data from a consequential real-world domain suggests that presentation order impacts choice after delay, even in situations where exposure is more incidental than motivated and choice is not required. Articles that appeared earlier in a

journal issue, or earlier in a topical section of a journal, were cited more frequently. Importantly, however, this relationship varied across sections. The citation boost for appearing early in a section was strongest for articles that appeared at the front of the journal, and should thus be more salient and more likely to be remembered. There was no evidence of recency effects, or later items being more likely to be selected, and ancillary analyses cast doubt on alternative explanations for the effect.⁴

These findings are particularly noteworthy given the seemingly objective nature of the choice domain studied. Citations are often seen as an unbiased measure of scholarship, and used to determine everything from hiring to tenure. Our results, however, indicate that the prominence research achieves can be shaped by the mere order in which articles happen to appear in the journal. Readers browse through journals from the beginning and most journals include a sequentially listed table of contents. As a result, psychological processes of attention and memory should lead earlier articles to be cited more.

The results have important implications. Given the high stakes associated with citations, everyone would benefit from greater awareness that they may reflect more than article quality. Controlling for other potential factors, such as article order, may provide a more accurate picture of research contribution. Similarly, if articles by more famous authors, or researchers from more prominent institutions, are more likely to appear first, this may partially explain why such articles receive more citations (Haslam et al., 2008; Helmreich, Spence, Beane, Lucker, & Matthews 1980). From a journal management

⁴ Primacy effects may be particularly likely in low-motivation situations where people are not required to choose at the end of the sequence. Recency effects should also be less likely in such situations, particularly when item lists are longer.

perspective, placing articles in order of acceptance, or randomly, may provide the fairest solution.

In conclusion, these findings contribute to understanding how presentation order affects choice. Most work in the area has looked at how serial position impacts immediate choice when participants are exposed to all the options and required to choose. Our findings, however, indicate that serial position has even broader effects. Even when individuals are not required to choose, and choice occurs after delay, the mere order in which options happened to appear originally can impact choice. More broadly, if presentation order influences even seemingly objective domains like academic research, it should have even larger effects in areas where choice is more malleable.

References

- Becker, S. (1954). Why an order effect? *Public Opinion Quarterly*, 18, 271–278.
- Berg, H. W., Filipello, F. E., Hinreiner, E. & Sawyer F.M. (1955). Consumer wine-preference methodology studies at California fairs. *Food Technology*, 9, 90–93.
- Carney, D. R., & Banaji, M. R. (2008). First is Best. Manuscript under review.
- Coney, K. (1977) Order bias: The special case of letter preference. *Public Opinion Quarterly*, 41, 385–388.
- Dean, M. (1980). Presentation order effects in product taste tests. *Journal of Psychology*, 105, 107–110.
- de Bruin, W. B. (2005). Save the last dance for me: Unwanted serial position effects in jury evaluations. *Acta Psychologica*, 118, 245–260.
- Garfield, E. (1999). Journal Impact Factor: A Brief Review. *Canadian Medical Association Journal*, 161, 979-980.
- Glanzer, M. & Cunitz, A. R. (1966). Two storage mechanisms in free recall. *Journal of Verbal Learning and Verbal Behavior*, 5, 351–360.
- Hamermesh, D. S., Johnson, G. E. & Weisbrod, B. A. (1982). Scholarship, citations and salaries: Economic rewards in economics. *Southern Economic Journal*, 49(2): 472-481.
- Haslam, N., Ban, L., Kaufmann, L., Loughnan, S., Peters, K., Whelan, J., & Wilson, S. (2008). What makes an article influential? Predicting impact in social and personality psychology. *Scientometrics*, 76 (1). 169-185.

- Helmreich, R.L., Spence, J.T., Beane, W.E., Lucker, G.W., & Matthews, K.A. (1980). Making it in academic psychology. *Journal of Personality and Social Psychology*, 39, 952-967.
- Houston, D. A., Sherman, S. J. & Baker, S. M (1989). The influence of unique features and direction of comparison on preferences. *Journal of Experimental Social Psychology*, 25, 121–141.
- Li, Y. & Epley, N. (2009). When the best appears to be saved for last: Serial position effects on choice. *Journal of Behavioral Decision Making*, 22, 1–12.
- Mantonakis, A, Rodero, P., Lesschaeve, I. & Hastie, R. (2009). Order in Choice: Effects of Serial Position on Preferences. *Psychological Science*, 20(11): 1309-1312.
- Miller J. & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly*, 62, 291–330.
- Murdock, B. B. Jr. (1960). The distinctiveness of stimuli. *Psychological Review*, 67, 16–31.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84(3). 231-259.
- Quiñones-Vidal, E., López-García, J. J., Peñaranda-Ortega, M., & Tortosa-Gil, F. (2004). The nature of social and personality psychology as reflected in JPSP 1965-2000. *Journal of Personality and Social Psychology*, 86, 435-452.
- Salganik, M. J. (2007). Success and failure in cultural markets. PhD thesis, New York: *Department of Sociology, Columbia University*.
- Smart, S. B. & Waldfogel, J. (1996). A citation-based test for discrimination at economics and finance journals. *NBER paper # 5460*.

Stremersch, S., Verniers, I. & Verhoef, P. C. (2007). The Quest for Citations: Drivers of Article Impact. *Journal of Marketing*, 71, 171-193.

Van Dalen, H. P. & Henkens, K.(2001). What makes a scientific paper influential? The case of demographers. *Scientometrics*, 50, 455-482.

Table 1
Regression Model Predicting Citations

| Predictor | Controlling for time Using Year Dummies | | | Controlling for Continuous Time | | |
|--|---|------------------|------------------|---------------------------------|------------------|------------------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Position in the Issue | -0.99 (0.18)*** | | | -1.10 (0.18)*** | | |
| Position in Any Section | | -4.05 (1.12)*** | | | -3.91*** (1.12) | |
| Position * 2 nd Section | | 3.58 (1.81)* | | | 3.53 (1.80)* | |
| Position * 3 rd Section | | 2.27 (1.18)^ | | | 2.11 (1.18)^ | |
| 1 st Article in Any Section | | | 17.79 (4.27)*** | | | 17.58 (4.27)*** |
| 1 st Article in 2 nd Section | | | -15.76 (6.12)** | | | -15.94 (6.12)** |
| 1 st Article in 3 rd Section | | | -13.56 (5.89)* | | | -13.58 (5.89)* |
| 2 nd Section Dummy (IRGP) | | -24.42 (5.55)*** | -10.97 (3.06)*** | | -24.45 (5.53)*** | -11.08 (3.04)*** |
| 3 rd Section Dummy (PPID) | | -5.50 (4.77) | 4.11 (3.19) | | -3.71 (4.64) | 5.40 (3.05)^ |
| # of Articles in the Section | | -1.38 (0.53)*** | -2.17 (0.49)*** | | -1.75 (0.46)*** | -2.55 (0.41)*** |
| Year Dummies | X | X | X | | | |
| Years Since Publication | | | | 0.44 (0.04)*** | 9.60 (0.57)*** | 9.64 (0.57)*** |
| Years Squared | | | | -0.002 (.00)*** | -0.28 (0.02)*** | -0.29 (0.02)*** |
| Adjusted R ² | 0.07 | 0.08 | 0.08 | 0.07 | 0.08 | 0.08 |
| Observations | 4849 | 4849 | 4849 | 4849 | 4849 | 4849 |

Note. The table presents unstandardized regression coefficients with standard errors in parentheses. Position is rank ordered, so higher numbers are articles that appeared later in an issue or section.

^ p < .08, * p<0.05, ** p<0.01, *** p<0.001

Figure 1

Example of *JPSP*'s independently edited and contiguously appearing sections

ATTITUDES AND SOCIAL COGNITION:
CHARLES M. JUNG, Editor
 University of Toronto at Scarborough

**Journal of
 Personality
 and
 Social Psychology**

www.apa.org/journals/psp

June 2008
 VOLUME 94 NUMBER 6

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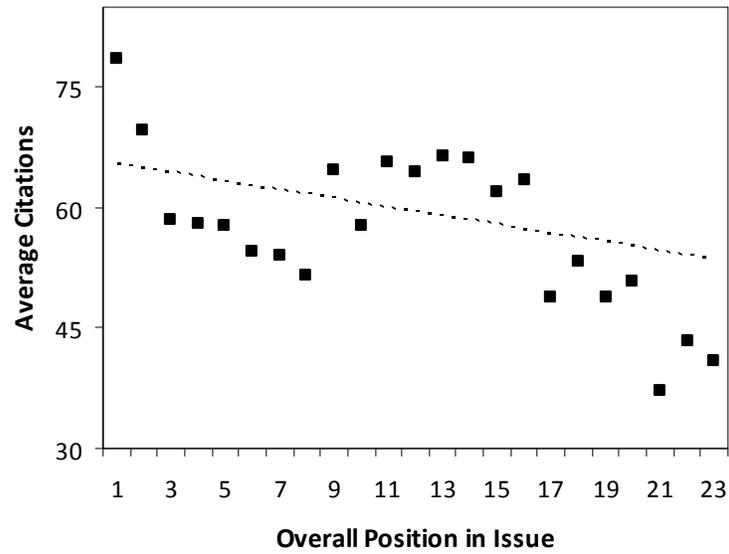
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Figure 2
Articles That Appear Earlier in the Overall Journal are Cited More



Note: For display purposes only positions for which there were more than 20 articles over the 25 year period are plotted.

Figure 3
Citation Boost for Appearing Earlier Is Strongest for Articles that Lead Off the Overall Journal

